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THE JOURNAL OF PHILOSOPHY

THE HUMANISTIC STUDY OF CHANGE IN TIME

ONE of the outstanding ambitions of humanistic scholars, since the Renaissance, has been to bring the phenomena of human society within the scope of the method of science. That this ambition has not been realized is obvious. Despite the claims of economists and sociologists, it must be confessed that an examination of the present state of knowledge in the "social sciences" reveals the fact that our efforts have failed to produce a body of results which might be described as a Science of Man or of Society. The explanation of this failure which is most frequently put forward, as by the late Lord Bryce in 1921, is that the nature of the facts dealt with in humanistic study renders it impossible that, in this field, we should achieve results such as are characteristic of "Science." Before admitting this impossibility, however, it would seem proper to consider, as an alternative, whether the failure may not possibly be due to the acceptance, by humanists, of assumptions or presuppositions which may have exercised an adverse influence upon the conduct of their inquiries.

In the studies which concern themselves with the activities of man, there is an obvious difference in aim between history, on the one hand, and economics, political science, anthropology, and sociology, on the other. During the last few decades, logicians have made much of this distinction between history and the "social sciences": history, they say, describes events or unusual happenings; the "social sciences" devote themselves to the discovery of natural laws, which are conceived of as descriptions of what takes place "naturally," "habitually," "recurrently," or "for the most part." In humanistic study, there is recognized, then, as inherent in the nature of the facts to be considered, a separation between what is "historical" and what is "natural." It is assumed that scientific investigation is concerned only with the determination of what is natural, and that this result is to be achieved by making abstraction from what is historical. In other words, the social sciences regard as unutilizable for scientific purposes the great body of actual fact which has been brought together through the researches of modern historians.

Examination of the history of the distinction between the "historical" and the "natural," in humanistic study, reveals the fact

that this separation or disjunction is not new. In point of fact, it goes back to the beginnings of European thought in the Ionian philosophy of the sixth century B.C. Pre-Socratic philosophy was concerned with certain questions which represent, in the strictest sense, "scientific" problems. It placed in the foreground the question: How are things constituted? It asked (1) Of what substance, or of what elements, are things made?, and (2) What do things do?, How do things "naturally" act? Thus, Pre-Socratic philosophy formulated in specific terms questions which retain their place as major interests in modern science. At the present moment, Physics and Chemistry, on the one hand, and Physiology, on the other, carry on inquiries which were initiated by the earliest Greek thinkers. The Pre-Socratics, however, asked another question: How did things originate?, and it is of importance for us to see that this question represents the first attempt to bring the study of *change in time* within the scope of scientific investigation. We have, therefore, at the source of European thought that separation between the historical and the natural which is accepted to-day as a valid distinction in the Study of Man. What I wish to point out is that the initial difficulty which humanistic study is called upon to face, at the present time, is to be traced to the form in which the early Greek philosophers expressed the problem of the study of change in time, for the Study of Man or of Society is concerned with a content which is subject to "historical" change.

If we consider the question, How did this object or entity before me originate?, it will be observed that the form of the inquiry inevitably throws the mind back upon some earlier, and usually remote, happening or situation, from which as a point of departure it turns to retraverse the whole interval separating that beginning from the present. For the Greeks, and for other peoples, such as the ancient Hebrews, genealogy was the framework into which explanations of this type were fitted. A genealogy has three elements: a person present or spoken of; a series of ancestors; and a specific "first" individual, source, or origin. Starting with this pattern, a convention or type scheme was arrived at for the explanation of things in general, and, in the hands of the Greeks, the genealogical method provided a form into which could be fitted an explanation of any situation in the affairs of men. Specifically, events were arranged in a genealogical chain stretching from the ultimate source, of the family or of causation, to the present situation or occurrence which was the immediate or initial object of interest. It should be observed, however, that the procedure of explaining or elucidating a given present in human affairs by stating its antecedents in time is what constitutes the "historical method." The "historical method" involves

the recognition of three terms: a point of departure or beginning; and a series of occurrences connecting the "origin" with the present. It is obvious that this formula is identical with the "genealogical method" of the Greeks, and that the "historical method" is the perpetuation of the first means employed in the attempt to deal with the succession of changes in the course of time.

It was with this genealogical pattern before them that the Ionian philosophers approached the problem of change in time. Passing at once beyond the simple procedure of stating in a one-after-another order the succession of named ancestors or occurrences, they attempted, in the first place, to account for "origins." In keeping with the scientific character of their inquiries, they envisaged "beginnings," whether of the universe, of life, or of man, in terms of some imagined process of generation or procreation. In the second place, maintaining this point of view, they attempted to account for the succession of changes in the world about them by a universal application of the *analogy* of the life cycle, the series of stages of birth, growth, maturity, and decline of the organic individual. There was no aspect of the phenomenal world, regarded as existing in time, which they did not seek to make intelligible by applying to it the model of this analogy. Anaximander, for example, held that every created thing is doomed to decay and destruction; he spoke of gods as coming into existence, rising and passing away at long intervals; he held that there are innumerable worlds, and that these come into being and pass away *ad infinitum*, some always coming into being and others passing away. Thus, at the beginning of Greek philosophy, we find the theory of cycles, which views the world and all that it contains—gods, worlds, animals, men, and societies—as having life and as undergoing periodic growth, culmination, and destruction.

The pattern of the life cycle and its unceasing recurrence was likewise utilized by the Socratic school in dealing with the problem of change in time. As everyone is aware, the Socratics concentrated their attention on Man, and interpreted the external world in terms of human will and purpose. In consequence of this initial interest, they came to regard Nature anthropomorphically: "Nature does nothing in vain"; "Nature like a good householder throws away nothing of which anything useful can be made"; "Nature behaves as if it foresaw the future." They returned insistently to the question: For what end or purpose do things exist? They occupied themselves, significantly, with the consideration of the purpose or end of development, *i.e.*, of the life cycle. With reference to this third point, they argued that the purpose of the development exhibited in the life cycle must be the complete or perfect realization of the potentialities present in the seed or in the original state or con-

dition. Again, they argued that, since Nature is purposive, the course of change exhibited in the life cycle, the development which has its "end" in the realization of the possibilities of the particular form of being, must be in accordance with the purpose of Nature, must, in short, be "natural." It follows that change which is "natural," being analogous with the development of the individual, will be slow, gradual, and continuous; it will not be "catastrophic," it will not admit of "breaks." Scientific inquiry will, therefore, distinguish between change that is "natural" and change that is "accidental." The accidental arises when an activity directed to an end is brought by the influence of external circumstances to produce a result other than that end; hence, what is accidental is to be regarded as an interference with the course of change that is natural. As a consequence of this view, scientific inquiry will have for its aim to determine the natural course of change—in the assumed life cycle of the universe or of society—in abstraction from all accidental happenings.

The importance of the separation made by the Greeks between the "natural," on the one hand, and the "accidental" or "historical," on the other, can not be overestimated, inasmuch as it retains a dominant influence in all phases of the Study of Man or of Society at the present time. At this point, however, the objection may well be raised that, in the modern world, humanists have adopted, as the directive concept in their inquiries, not the theory of cycles, but the theory of progress. In order to reach a position from which the underlying conception of the theory of progress becomes intelligible, it will be necessary to refer to the discussion of the theory of cycles by St. Augustine. Now, St. Augustine denies unequivocally the possibility of recurrent cycles. He considers the idea "fantastic," for the reason that recurrence would involve the repetition of the Incarnation, and this suggestion moves him to ire. "Christ," he says, "died once for our sins; and rising from the dead, He dieth no more, 'Death hath no more dominion over Him.'" For St. Augustine, then, the theory of recurrent cycles is inadmissible. Nevertheless, it is not a simple matter for any man to rid his mind of ideas implanted by his education; St. Augustine throws overboard the notion of a succession of cycles, but he retains, and employs again and again, the analogy between the one "life" of mankind and the life cycle of the individual. Thus, he remarks, "Divine Providence, which guides marvelously all things, governs the succession of generations, from Adam to the end of the ages, as a single man." In his conception, the human race is regarded as a single individual, and the analogy enables St. Augustine to contemplate the life of the race as exhibiting a development having its realization in a predetermined

end. While, then, St. Augustine rejected the theory of recurrent cycles, ne transmitted to modern thought the analogy between the life of mankind and the life cycle of the individual; he transmitted also the conception of a uniform series of stages of development, which is the same for humanity as a whole, for each and every people or group, and for every individual; he transmitted further, the Aristotelian conception of development as a movement directed to an end—the attainment of perfection in the future.

With the Renaissance, the analogy between the race and the individual, as formulated by Augustine, assumes new importance, and appears as an essential element in the thought of such men as Machiavelli, Ramus, Bodin, Du Bellay, Francis Bacon, Descartes, and Pascal. In Pascal's expression just as the individual advances from day to day in knowledge, so mankind makes continual progress as the world grows older; hence, he thought, the entire sequence of men, through the ages, should be looked upon as a single individual existing always and learning continually. At the end of the seventeenth century, however, a new modification of the analogy was introduced. Making the usual comparison between the men of all ages and a single man, Fontenelle reaches the point of saying that this man, who has lived since the beginning of the world, is now in his prime. "It is annoying," he continues, "not to be able to prosecute to the end a comparison which is in such a fair way; but I am obliged to confess that the man in question will have no old age, he will always be equally capable of those things for which his youth was suited, . . . that is to say, to abandon the allegory, men will never degenerate, and there will be no end to the growth and development of human wisdom." With this modification, we are, as Professor Bury has pointed out, in the presence of the complete doctrine of Progress. It should be observed, however, that from this time on, while reference to an "old age" of mankind drops out, the analogy between the race and the individual is retained, and reiterated, by Montesquieu, Saint-Pierre, Mably, Turgot, Herder, Condorcet, Comte, and many others.

The idea of progress, thus derived from St. Augustine's version of the theory of cycles, laid emphasis upon the concept of continuity —as development in the individual is slow, gradual, and continuous, so "progress" in the race must be slow, gradual, and continuous. To the disputants in the Quarrel of the Ancients and Moderns, the weak spot in this view was the admitted break of continuity represented in the Middle Ages. If the principle of continuity was to be maintained, it was necessary to account for the actual breaches of continuity in the past. The solution of this difficulty provided by Fontenelle and Perrault was that Nature makes the same provision for

progress in every age, but that barbarian invasions, long wars, and bad governments may occasion interruptions of progress. Evidently, then, advancement, like growth, would be continuous, were it not for the obstacles introduced by the misapplied energies of men. At the beginning of the modern period, European thought thus became committed to the assumption that progress is a "natural" form of change, and hence is to be expected. Leibniz expressed the current view in saying that "each created being is pregnant with its future state, and naturally follows a certain course, if nothing hinders it." The humanists of the eighteenth century, associating this with Pascal's analogy, and deeply affected by the contemporary interest in the study of physiology, assumed that the scientific study of change in time must have for its aim the determination of the "natural" or normal course of development of social groups, abstraction being made of the "accidental" interferences or hindrances occasioned by historical events. In its full realization, they envisaged the scientific study of man as concerned with the discovery of the orderly provisions which nature has made for the "natural" development or progress of nations and of mankind. The results of this reasoning appear, fully developed, in the work of Adam Smith. The great object of his inquiries, Dugald Stewart stated, was to illustrate the provisions made by nature for a gradual and progressive augmentation in the means of national wealth, and to demonstrate that the most effectual plan for advancing a people to greatness is to maintain that order of things which nature has pointed out. It is of importance to observe that if we adopt this point of view and undertake the investigation of the provision which nature has made for the "natural progress of opulence in a country," historical events will be conceived merely as interferences with the "natural order" of social growth. Hence, inquiry will proceed upon the assumption that, as Adam Smith believed, "it is of more importance to ascertain that progress that is most simple, than the progress that is most agreeable to fact, for . . . it is certainly true, that the real [actual] progress is not always the most natural. It may have been determined by particular accidents, which are not likely again to occur, and which cannot be considered as forming any part of that general provision which Nature has made for the improvement of the race."

The assumptions which we have found to lie at the foundation of the "social sciences" may be stated briefly as follows: It is assumed that progressive change is a "natural" movement, which is always slow, gradual, and continuous; it is assumed that the laws of Nature represent the orderly provisions which Nature has made for the attainment of a specific purpose, the happiness of mankind; it is

assumed that the purpose of scientific inquiry is the determination of the "natural" or normal course of change in time, and hence that the investigator should ignore, or rather eliminate from consideration, the intrusive influences which have interfered with the operation of the "natural order." The consequence of these assumptions is that historical events become unimportant and indeed irrelevant for the purposes of scientific inquiry in the investigation of "progress" and of "evolution." Meanwhile, it must be remembered, history maintains its unassuming allegiance to the "genealogical" method.

The suggestion with which this paper started was that the failure of humanists to achieve the desired end of a Science of Man might possibly be due to the acceptance (consciously or unconsciously) of assumptions or presuppositions which have had an adverse influence on the conduct of their inquiries. We are now in a position to see that humanistic study, as carried on at the present time, does actually involve assumptions of a far-reaching character. We are in a position to see that the original source of our present difficulties lies in the assumption of the earliest Greek philosophers that change in time, in human culture and organization, is analogous with the change exhibited in the life cycle or development of the organic individual. We are in a position to see that the acceptance of this analogy is intimately associated with the methodological assumption that investigation of any sort, if it is to be "scientific," must necessarily follow the procedure of "physics" (the investigation of the "nature" of things), and hence that humanistic inquiry must aim at the determination of the "natural" course of change in time, in abstraction from the changes which are brought about by "historical" or "accidental" occurrences. Since, however, the present condition of any society or institution is the product of historical circumstances, it follows that the life cycle analogy is inadmissible, and that the procedure of "physics" is inapplicable in the study of change in time.

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SCIENCE AS SYMBOL AND AS DESCRIPTION

IF philosophy is to succeed, or even make any headway, in its quest of the "synoptic vision," it must accept as its data and points of departure the accredited results of the "special sciences." Just as each of the sciences is based upon the facts of experience which are to be found in its particular field, so philosophy weaves

together the conclusions of scientific research to form its view of the world as a whole. Just as the hypotheses of each science stand or fall according to their success or non-success in harmonizing the relevant facts, so the still wider generalizations of philosophy must stand or fall according to their success or non-success in harmonizing the hypotheses which are regarded as established by competent workers in the various fields of scientific investigation. To the present writer, as no doubt to many others, this appears to be a commonplace of the methodology of philosophy.

To be sure, philosophy is wider than cosmology. Not only does it seek to formulate a view of the world which flows from, or at least is reconcilable with, the accredited results of astronomy, physics, chemistry, biology, psychology, *etc.*, but it also goes on to discuss the possibility of achieving and conserving values in this world of the sciences. In other words, it is a part of the task of philosophy to orient man, a creature of hopes and fears, of approvals and disapprovals, in the universe which it has described. We may, indeed, agree that this search for a rational doctrine of human living is the principal and essential part of philosophy. Nevertheless, it is important to bear in mind that a theory of values is logically subsequent to a theory of reality. Man, the pursuer of values, does not live and move in a vacuum; he has his being in a situation which is largely not of his making and is for the most part beyond his control. Accordingly, before he can know what ideals may be wisely pursued —nay more, before he can know what ideals are worthy of pursuit by a wise man— he must know the situation in which his life is to be lived.

A man goes, let us say, to a specialist for a physical examination. He desires to have a sober, cold-blooded, matter-of-fact account of the state of affairs which actually obtains. If the examination is to serve its purpose, it must not be controlled or even influenced by any tender-hearted concern for the hopes and fears of the man who is being examined. Human wishes are now irrelevant. The duty of the examiner is not to bring good news, but to report the truth. *After* the examination has been completed, however, *after* the matter-of-fact description of the actual situation has been arrived at, the desires and preferences of the man whose case is being considered become a pertinent part of the problem. For then, with the help of friends and well-wishers, he must decide what ideals and values ought to be sought by a person in the situation in which he finds himself.

Philosophy is a difficult enterprise. And a large part of the difficulty appears to flow from the kind-heartedness of philosophers.

Philosophy has a double rôle. It is both medical examiner and friendly counselor. And woe to the examiner who permits a friendly interest in his patient to distort his observation or to warp his reasoning!

In order, then, that its axiological inquiries may be pertinent to the situation in which men find themselves, philosophy must first obtain a faithful description of the nature and structure of the actual world. And to gain such a description, it must go to the special sciences for its data. The competence of the sciences to give us a genuine description of reality has, however, been denied. Science, it is said by some philosophers, is only a system of man-made concepts. It is "symbolic" and "fictive" rather than descriptive.

A position of this sort is defended by Professor M. C. Otto in his eloquent and thoughtful little book, *Things and Ideals.*[1] "Scientific concepts and generalizations," says Mr. Otto (p. 214), "are not literal transcripts of reality but highly selective constructs of the human mind; not discoveries in the strict sense, but inventions, products of the creative imagination of men of genius."

To the present writer it has seemed so obvious that any worthwhile philosophy must be built upon the achievements of the sciences, or at any rate must be reconcilable with them, that statements such as these occasion a distinct shock. I confess my inability either to decide what they mean, or if a meaning which is not a mere truism be assigned to them, to find any rational ground for regarding them as true.

Mr. Otto, it appears, has chosen this position in the interest of human values. In order to rescue "Ideals" from the clutches of all-devouring mechanistic science, he finds it convenient to question the knowableness of "Things." His object, he tells us, "is merely to see on what view of science a genuine higher life is possible" (p. 217). "The conceptual view of science," he remarks (p. 218), "not only leaves the way open for, but positively suggests the necessity of, other conceptual schemes for dealing with other aspects of life."

But can the higher life be saved, or given any definite content, by what is virtually an appeal to nescience, or still worse, to a multitude of diverse knowledges among which one is permitted to take his choice?

I

Before examining this question, however, let us inquire what can be meant by the statement that scientific concepts and generali-

[1] Otto, M. C., *Things and Ideals.* Henry Holt and Company, New York. 1924.

zations are not "literal transcripts of reality." Three suggestions occur to me, one of which may be taken in several different ways:

1. It is scarcely possible that the words "literal" and "transcript" are to be taken *literally*. For thus understood the statement would be so obviously true as not to be worth the labor of utterance. No one supposes that reality is composed of letters and syllables, and that science is a "transcript of reality" in the sense that there is a letter-for-letter or syllable-for-syllable correspondence between scientific treatises and the reality which they purport to describe.

2. Shall we, then, give up the rhetorical word "transcript" and simply understand Mr. Otto to mean that the *description* of reality which the sciences give us is not strictly accurate or absolutely complete? If this, however, is all that is meant, the statement is again so obvious as not to be worth the saying. It is not likely that any devotee of science is so puffed up with the pride of achievement as to contend that his results are wholly free from error, or that they are in any sense complete. The possibility of error must always be conceded; and no matter how far the investigation may be carried, some elements of the situation are sure to elude the grasp of the investigator. A description may, however, be *faithful*, so far as it goes, even if it is neither inerrant nor omni-inclusive.

3. Or would Mr. Otto contend that the body of doctrine which we call science is not even a partial and approximately correct description of reality? If this should turn out to be his position, it would then be pertinent to inquire whether he means (*a*) that no descriptions of reality exist; or (*b*) that, while such descriptions exist, the accounts given us by the sciences are not properly included within the class "descriptions of reality"?

a. Let us consider the suggestion that there are no descriptions of reality. The class defined by the phrase "description of reality" or "transcript of reality" would then be a "null class." But if this is to be our interpretation, would the noun "description" or its synonym "transcript" have any meaning at all? It is possible, of course, to define classes which are obviously null. To employ a hackneyed example, "square circle" defines a class which is null. In this case, however, each word taken by itself means something. There are circles and there are squares, although there are no square circles. But if there are no descriptions of reality, there are no descriptions! The term "description" would then be a word without meaning. The statement which we are examining can hardly be interpreted, then, in the sense that there are no descriptions or transcripts of reality at all; for in this sense it would be a meaningless group of words, *i.e.*, would have no sense whatsoever.

b. Shall we understand Mr. Otto to mean, then, that there are

descriptions of reality, but that the accounts given by the sciences are not to be included among them? If, however, it is admitted that descriptions exist, where are they to be found? Three possible answers occur to me. These descriptions of reality, among which the accounts given by the sciences are *not* to be included, are (x) never arrived at by human minds, but are possessed by some superhuman intelligence or intelligences; (y) they are ideals which human (so-called) descriptions point toward and approximate, but never quite agree with; or (z) they are produced in the ordinary non-scientific or pre-scientific cognitive experience of human beings, but are lost or missed when the technique of science is substituted for the freer and more natural cognitive procedures of "common sense."

x. Suppose, now, that human minds are not in possession of descriptions of reality, but that some superhuman, or other-than-human mind is said to be in possession of them. These statements would, it seems to me, be just as meaningless as the statement that there are no descriptions of reality at all. For it is we human beings, and not these other intelligences, who are supposed to utter these propositions, and by the hypothesis we should have had no experience which could impart content to the term "description." It is manifest that if *we* have had no experience of descriptions, we could not significantly include the phrase "descriptions of reality" in our inventory of the items of cognition possessed by a superhuman intelligence.

y. Suppose, however, that "descriptions of reality," whether or not they exist as cognitive experiences of some superhuman intelligence, may be regarded as the "limits" which are pointed towards, but never quite attained by, human experience. We should then be in possession of experiences which in a "Pickwickian sense" might be called descriptions of reality, and our word "description" might be supposed to derive its meaning from these imperfect exemplifications of ideal description. This interpretation, however, seems to be identical with No. 2, above, that all descriptions are doubtful and incomplete. And this we have already discussed. It may well be that none of our descriptions of reality—whether we think now of those contained in the manuals of science or of those produced by common-sense—are strictly accurate or absolutely complete; but they may nevertheless be faithful descriptions so far as they go.

z. There still remains the supposition that the human mind is in possession of genuine descriptions of reality, but that none of these are contained in our manuals of physics, chemistry, astronomy, *etc.* This might mean that when I look through a car window and report that I have been looking at a rocky hillside pasture, in which a horse and two cows are grazing, and add that the horse is between the two cows,—such a report is a description of reality; but

when a physico-chemist, after careful and long-continued research, tells us that the atom of a certain element is composed of a nucleus which contains four protons and two electrons, and of two additional electrons which are not included in the nucleus but revolve around it—what *he* reports is *not* a description.

It must be admitted, I think, that this view is not meaningless, like $3a$ and $3bx$; neither is it unimportant, like 1, 2, and $3by$. It would certainly be "important, if true." But, while meaningful and also important, the proposition that *scientific* accounts of reality are not descriptions, while those arrived at in ordinary unscientific cognitive experience *are* descriptions, does not seem to me to be acceptable. For, in the first place, I should have considerable trouble to find the line of division between these ordinary, everyday descriptions and those which are termed "scientific." For example, would a plan of the streets and subways of New York be an everyday description, and therefore a description of reality; or would it belong to the science of geography, and be but a so-called description of reality? Again, if we should accept a city plan, or the map of a continent, as being in the true sense of the term a description, what ought we to say about the astronomers' model of the solar system or the physicists' model of the helium atom?

In the second place, the attempt to include the descriptions of common-sense within the class of genuine descriptions of reality, while denying this status to the conceptual systems arrived at as a result of the careful, painstaking procedures of the sciences, seems to imply the principle that *the more pains we take* in trying to discover the nature and structure of the actual world, *the less likely we are to succeed* in the attempt. This may, of course, be the case; but I can see no reason for affirming that it is the case, or for denying that the contrary principle is true. Children do, indeed, tell us that you never find money in the street when you are looking for it, and that if you wish to find money you must *not try* to find it. But, whether or not this is true of the finding of money, it seems unlikely that it should be true of the finding of truth! For can we really believe that a hasty glance at the sky will teach us as much as we could learn by looking through a telescope, or that the vague ideas of common-sense or "intuition" are more likely to be descriptive of reality than the results attained by the painstaking, methodical procedures of the sciences?

To be sure, if I should be asked to tell *how I know* that it pays to take pains and to proceed methodically in trying to discover the nature and structure of the actual world, I should have to admit that I am unable to give a rational justification of my belief. In the final analysis scepticism is, I suppose, the true philosophy,—

if only the sceptic be sufficiently thoroughgoing in his scepticism to admit the *possibility* of truth. In the final analysis all science is based upon certain principles which can not be proved. I suppose it is true that we can only *postulate,* and can not *prove,* the general trustworthiness of human sense-perception and memory. In the same manner, I suppose, we can only *postulate,* and can not prove, the superiority of those careful, methodical habits of investigation which we call "science" to the carefree, slipshod procedures of "common-sense." It must be admitted that the second of these postulates is not an implicate of the first; but neither is the second postulate any more doubtful than the first.

In short, there is no reason to deny that the sciences give us at least partial and approximately correct descriptions of reality, and that *it pays to take pains* in the quest of truth.

II

The proposition that scientific concepts and generalizations are not transcripts of reality is, then, unimportant or meaningless or false, depending upon the way we take it. That there is, however, a sense in which many, at least, of the concepts and generalizations of science are "inventions" rather than "discoveries" (p. 214) may, I think, be admitted without weakening the position which I am defending. Inventions, however, are successful only when they work; and they do not work unless they conform to reality. Many of the laws of nature as formulated by the sciences are of a purely ideal character. They are hypothetical statements of what *would* take place in some never-existent situation, rather than descriptions of what does take place in any actual process. For example, it is doubtful whether any material body ever behaved in the manner described by Newton's first law of motion. Material bodies seldom or never move in straight lines or with uniform velocities. We may say, to be sure, that they *would* move in this fashion *if* they were not acted upon by external forces; but, as a matter of fact, so far as we can see, material bodies *are* always acted upon by external forces. The condition specified by the law is thus a condition which is usually, and perhaps always, contrary to fact. In the interest of generality it is convenient to abstract from some of the elements of the situations to which the law is meant to apply. This law is not, then, a description of reality; it may rightly be called a "highly selective construct," or even an "invention." *Considered by itself,* in isolation from all other laws of nature, it might even be said to be a *falsification* of reality. It is a falsification in the sense that it neglects certain elements of every actual situation. But *if this law*

is supplemented by other laws which take care of these neglected elements, the entire body of laws thus formed is not a falsification, but a more or less accurate description of reality.

The precise way in which science *slices up,* as it were, the various situations which it seeks to describe, may be a matter of convention rather than of rational necessity. Thus, in describing the motions of material particles, certain elements of the situation are taken care of by the law of inertia; other elements by the law of gravitation; other elements by the laws of electromagnetic attraction and repulsion; still other elements, it may be, by still other laws. The laws might perhaps have been stated differently; and, if they had been stated differently, there would no doubt have been a somewhat different division of labor among them. A geographer in writing an account of any given country might arrange his subject-matter in any one of a dozen different ways; and any particular subdivision of his account, if it stood alone, would be in a sense *untrue;* yet the entire account may be a description, and a *true* description of the country in question. In the same way, while invention and convention have doubtless played their part in determining the formulation of scientific laws, any considerable group of these laws may reasonably be supposed to correspond to processes of the actual world. To argue that because each of the laws of a given group is not a description of reality, all of them taken together are not a description of reality, would be a clear case of the "fallacy of composition."

III

We return to the motive given by Mr. Otto for his adoption of what he calls the "conceptual view of science." He wishes to see "on what view of science a genuine higher life is possible" (p. 217). His thought appears to be that if our ideals come into conflict with the conceptual scheme which we call science, the latter may safely be disregarded; because, forsooth, there are, or for all we know may be, "other conceptual schemes" (p. 218) which are equally valid. Thus armed with a proper contempt for the dogmatism of science, man may pursue the higher life undismayed in the midst of wordy warfare between religious reaction on the one hand and mechanistic science on the other.

I wonder, however, whether Mr. Otto realizes how this position isolates our human ideals from everything by reference to which they might be criticized or corroborated. Has he, indeed, forgotten his own trenchant criticism of the formalistic ethics of Immanuel Kant?

"Kant's noble theory," says Mr. Otto (pp. 74 f.), "is a book of checks, made out to bearer on demand, signed by the blind sense

of duty, and good for whatever amount the holder may have the will to write in, and the power to collect." The *writing in* and *collecting* were very efficiently taken care of, it appears, by the partisans of the Prussian Kaiser. "Nothing better could happen to us," continues Mr. Otto, "than that we should be cured of our sentimental infatuation for moral abstractions by being sent out to develop our moral constitutions in the air of actuality."

Whether or not poor Kant should be held responsible for Prussian militarism I forbear to inquire. An ethical theory which simply says, "Do your duty," is very likely indeed to be exploited by some fanaticism or other. Not only Kantian morality, however, but any kind of value-cult which fails to maintain contact with our best thought concerning the actual world, will be abused in this fashion. For if the sciences do not give us descriptions of reality, if the conceptual scheme of the sciences is irrelevant and may properly be disregarded when we are seeking to determine which alleged values are genuinely valuable, what check do we have upon caprice or fanaticism? Unreasoning loyalties, unquestioned faiths, purposeless taboos, will flourish in an atmosphere of contempt for science. Merely to praise the *method* of the sciences (p. 222), while disregarding the *results* which flow from an honest employment of the method, can not suffice. If science is really a "coöperative achievement" (p. 223), one would expect workers in the field of ethics to recognize the results of chemistry, physics, psychology, and biology.

For suppose a conflict of ideals to arise. Such a conflict would be manifested concretely in the divergence between proposed lines of conduct. In order to decide between them we should need to know a great deal about the consequences which would probably flow from each. But the nature of the consequences would depend upon the nature of men and of the world in which men live. Now the methodical attempt to gain a knowledge of men and of the world is what we know as science. And if the appeal to the finding of science is to be disallowed on the plea that the "concepts and generalizations of science are not a literal transcript of reality," any rational adjustment of the conflict would be impossible. In other words, the ideal supported by the heaviest battalions or recommended by the most effective propaganda would triumph.

If it should be discovered, then, that a philosophy based upon the accredited results of the sciences must be mechanistic, we ought to adjust our theory of values to the world-view thus obtained, instead of resorting to the desperate maneuver of denying the descriptiveness of the concepts and generalizations of science. It is not necessary that we should throw the truth-values overboard in a fren-

zied attempt to save other human values from destruction. For suppose that the mechanistic theory were completely established as good science. Suppose for the sake of the argument that all phenomena were found to be completely explicable in terms of the concepts of physics and chemistry. Suppose it to be proved, indeed, that a *man* is nothing but a machine—a very complicated machine, to be sure, but still a *machine*. What would follow concerning human values? Nothing of a very disastrous sort, so far as I can see. Some of the values approved by some human beings might, indeed, be shown to be empty and meaningless. Some human ideals might be shown to be absurd and impossible. But this might be all to the good. For (if we assume it to be true) it is hard to see how the acceptance of the mechanistic theory could undermine or destroy values which are worthy of preservation.

In the past few centuries the increasing dominance of the mechanistic type of explanation seems to have had much to do with the gradual obsolescence of certain practices—to us almost unthinkable, but once approved by men of the highest ideals and the completest sincerity—such as the burning of witches and the flogging of the insane. It may well be that in the future as in the past the mechanistic point of view may lead to a softening of prejudices, a lifting of taboos, a pointing of the way to beneficial reforms in various departments of human activity.

Suppose that men *are* nothing but machines. Then everything that a man is, a machine of this particular type would also be. These machines would be admirers of the beautiful, approvers of the good, seekers of the true. In a word, if we are machines, we are the kind of machines which hope and fear, approve and disapprove, pursue the ideal and reject the vulgar, as man has always done according to his light. If man is a machine, then Luther and St. Francis, Moses and Gautama and Jesus, were machines, and machines of the right sort must then be capable of all of which these were capable.

If mechanism can make room for all these *facts*, it is not incompatible with *values* in general. The question of values and ideals is relevant only in the sense that these, too, are facts of which any complete theory of reality must take account.

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THE SIGNIFICANCE OF ARTISTIC FORM

ART to a certain extent opposes nature and rebuilds it nearer to the desire of an Omar's heart. But it is equally true that art is a continuation of nature, a fulfillment of some of nature's

groping tendencies. Many artists and philosophers have lost sight of this second truth and inferred from the first that since the artist would thwart an indifferent or hostile nature he must escape from life into an ivory tower, therein to weave an alluringly ghostly pattern of illusion. "Better," sigh these beautiful but ineffectual angels, "to linger with lovely falsehoods than to contemplate truths about a nature that signifies little or nothing for the lofty and tragic pilgrimage of humanity between a sleep and a sleep."

The fundamental rejoinder to this kind of an analysis of such stuff as dreams are made of is to disclose the *relativity* of form in order to reveal its deep significance in the congruity of beauty and reality. Form is arrangement. Contents are the details arranged. All the fine-spun formulations of the study and the studio are grounded on these two simple but profound truths. Now there are forms in nature already. In nature we do not find pure tones, for instance, but tones and over-tones or partials in an elaborate arrangement already provided for the musician. He learns to capitalize such forms as the timbres of instruments in a sumptuous orchestration wherein the forms of nature become the contents of superforms. The only partially antithetical relationship of harmonies and "dissonances" is a further revelation of the forms in nature as well as of the form-making tendencies of art. Musicians have furnished us with a twofold definition of dissonance: objectively it is two or more tones whose overtones conflict, subjectively it is a more or less unsatisfying chord which makes us restless for its resolution. Has the artist here run headlong into nature's chaos? Not at all. In due time a Monteverdi discovers that these dissonances are at least useful to create dramatic tension. One dissonance after another, as the centuries slip by, is gradually admitted if it is adequately prepared for and healingly resolved into a concord. But as the number of tolerable dissonances increases, the still bolder composers leave out the preparations and so lash their bolder hearers into a startled and joyous acceptance. And the last audacity is to leave out the resolution. One ninth chord was once an abomination to all human ears. Then it became a hauntingly delightful dissonance. Now dissonances, we are told, are the verbs of music; they lend momentum. In the last movement of his symphony César Franck wrote measure after measure of ninth chords which make us feel as if we were going to heaven. To our ears the partials are no longer in meaningless conflict. They are subtly arranged. Our more tolerant and sensitive ears have found at last that the partials of ninth chords were already arranged in nature on tiptoe for their evocation and arrangement into a super-form like a symphony.

So much for one energy-wave. We find that certain other energy-waves, the "ether-vibrations," " disturbances in an electro-magnetic

field," or whatever the physicists finally decide to call the causes of colors, are already elaborately arranged together in nature (in sunlight, in rainbow, in ochre-ores, in the Tyrian purple from the cuttlefish, on meadows and seas) before painters ever dreamed of mixing pigments or of doing full justice to the bewildering blends of local color and light and shade on such a mountain slope as that which for years challenged the brave and humble genius of Cézanne. Nature, as Cézanne well knew, had already made forms of which his work was not the defiance but the loving continuation. And the time may come when some future Scriabin may discover arrangements in nature of energy-waves to which the artist is as yet impervious, from waves as huge as heat to those as infinitesimal as the ultra-violet rays, gamma rays, and X-rays which are unperceived directly by the senses, but which because of their marvellously penetrative powers become more and more manifest.

If it is clear that energy-waves furnish the artist with ready-made forms, this is even more obviously true of matter. The vast designs of planets, satellites, planetoids, and dissonant comets hovering about the suns of unnumbered solar-systems lead Ptolemy to a hypothesis mathematically precise and beautiful. But it is significant that the theory of Copernicus is at once even more beautiful with its grasp of mightier forms and also closer to the facts as revealed by the telescope. The delight of man in the forms of hair-distribution and muscle-weaving, of skeletons and shells and spider-webs, has been quadrupled by the microscope with its revelation of diatome and vorticella and myriads of other protophytes and protozoa, to say nothing of the patterns of specialized cells in embryo and adult organism. Finally the discovery and use of X-rays and of radioactivity and the formulation of the electronic theory of the atom has disclosed more and more of the nuances of the forms of crystals, the cunning design of soap-bubble molecules, the delicate blend of autonomy and sharing in the ways of atoms.

But nature has done much more than provide man with forms. Nature so made man himself that his most fundamental activity, perception, is quintessentially a form-making process. Whether we define it after the fashion of the advocate of introspection as "sensation plus imagination" or with the behaviorist we speak of "conditioned reflexes," perception is clearly the combination of the effects of present stimuli with past experiences in a new form which doubtless corresponds, but corresponds only partially, with the objective forms which man observes. Perception is at once the recipient of nature's forms and contents and the arranging of these as contents of super-forms.

The form-making of perception is often reinforced by the emotions. Even the scientist, however devoted in his more precise obser-

vation and experimental verification he may be to bare perceptions and rarefied concepts, yields, when he envisages epically a new hypothesis, to the exaltation of emotions which quicken his colossal analogies that span such remote aspects of the universe. However empirical and intellectualistic he may be as an experimentalist, the scientist, as an hypothesis maker, is a mystic. As for the artist and art-lovers the experiments of C. W. Valentine and E. Bullough have demonstrated how much emotions determine most reactions even to contents as relatively simple as familiar sounds and colors. These English psychologists have made a suggestive classification of the reactions observed. The least esthetic reaction they call "physiological," when colors please as "stimulating," "soothing," for example, or when colors annoy as "dazzling," "depressing." Of higher worth according to their interpretation is the "objective" attitude; colors and sounds are enjoyed as "saturated" and "full and round," while others are condemned as "thin" and "dull." Higher yet they rank the "associative" reaction, providing that the associations are closely relevant, green delightful because it reminds of nature, the sound haunting because it conjures up the memory of bells. But most unequivocally esthetic in the judgments of these experimenters are the attitudes of those who praise or reject colors and sounds in accordance with "characters" which they attribute to them, orange relished as "mysterious," saturated red as "strong and dashing," unsaturated blue disliked as "undecided" or "morbid," sounds called "hopeful" or "bold" or "sullen." This last attitude the psychologists found more frequent among those who were the most highly cultivated esthetically. It discloses a form-making emotional tendency which reinforces perception. And it significantly reminds us of George Santayana's famous definition of beauty as "pleasure regarded as a quality of a thing."

In nature, then, matter and energy have form before we interact with them. The perception of these is a form-making tendency often reinforced in this characteristic by emotions so that the mind elaborates congruously the forms already inherent in objective nature. But this is not all. Among the most recent estheticians, C. K. Ogden, I. A. Richards, and James Wood have attempted a most interesting reconciliation of the best in all the earlier definitions of beauty under the heading "*Synæsthesis*, . . . as descriptive of an æsthetic state in which impulses are experienced together," including "equilibrium" in which "there is no tendency to action" and "harmony" when the "impulses . . . work together." This introduces us to a third aspect of the significance of form. Besides the energic and material forms and the form-making tendency of mental activity we have now to note with the advocates of synesthesis that when we

find an object beautiful our own mental contents and processes assume an arrangement or form.

All these forms or form-making tendencies no doubt correspond with each other to a certain extent and grope toward each other, though not toward mutual annihilation. George Santayana has at times written of the experience of beauty as if it were but a survival of animistic tendencies which we now know to falsify facts, but which build for us cathedrals of ideals more worshipful than reality. But if our analysis of the fourfold significance of form is correct it would seem possible that while the esthetic experience of the art-lovers and art-makers does, indeed, transform objects both natural and artificial in the direction of the soul's longing, yet this expansion of reality is along the widening vista of nature's own groping, an acceleration of the fulfillment of aspirations sometimes less articulate perhaps, but already inherent everywhere. Beauty is not wholly in the object called beautiful or in the person who calls it beautiful. It is in both as they are drawn together. It is a relation. It is a mystical marriage in which both lose themselves to save themselves. An object is beautiful if it has form, content, and expression which arouse in the beholder a symphony of well-focused emotions which center in love, and if at the same time it arouses certain rhythmical postures and strivings by virtue of which the beholder seeks to enter into perfect harmony with the object which he holds to be beautiful.

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BOOK REVIEWS

Nature and Human Nature. Essays Metaphysical and Historical. HARTLEY BURR ALEXANDER. Chicago: The Open Court Publishing Co. 1923. xi + 529 pp.

Here is a decade of essays, 1910–1920, from a philosopher's pulpit, now collected from various periodicals, remodeled and republished; an interesting and a timely volume. It is interesting just for representing the author's chief pursuit, "philosophy as recorded in letters," and his disposition, making philosophy more art than science, to mingle intimately philosophy and religion. It is interesting, too, for being confessedly "more or less autobiographical." It is timely for being not only autobiographical but also in its emphases consistently and persistently more appreciative than systematic, more concerned with dramatic episodes and values of experience than with merely rational explanation. Certainly the present time has much need of such a contribution from philosophy. Many there are

who must welcome an adventure, as stimulating as this, in what Josiah Royce, now nearly half a century ago, called the "religious aspect" of philosophy. Dr. Alexander has read widely among writers of all sorts and times, poets, prophets, essayists, historians, and even philosophers, and to a certain depth of feeling he has added much insight. Striking aphoristic sentences are frequent. Thus, for a single example (p. 300): "The power to idealize is Nature's *ad hominem* answer to pessimism and Man's condemnation of man is his vindication of humanity."

The essays' very titles well suggest the atmosphere of the book. "Religion and Racial Progress," "Goodness and Beauty of Truth," "Beauty and Pain," "Wrath and Ruth"—of the Great War, and "Art and Democracy," are characteristic both for their being in pairs and for their emotional, dramatic quality and purpose. "Human Personality," "The Socratic Bergson" and "Plato's Conception of the Cosmos" are different formally, but not so in fact. Even "The Definition of Number," invading mathematics and the philosophy of mathematics, moves through antitheses and their dramatic intrigues. Then, as if bringing the dominant motive to the surface, there is "The Philosophy of Tragedy," perhaps the least satisfactory essay of all. At the last, the fifteenth essay, the author gives his "Apologia pro fide."

But now, more intimately, here strangely walks, if my eyes do not deceive me, the ghost of orthodox Christianity; visibly, but not startlingly, as with modernism more conventionally dressed. It is only the ghost, however, and, if indeed these essays be timely, this is ominous. The ghost, too, may soon pass. In the Apologia Dr. Alexander says (p. 493): "I am a member of no church and a participant in no Christian communion; nor have I ever been such." Yet soon he adds (p. 501): "At the core of the Christian religion there is a dogma—voiced in no creed, so far as I am aware—which cuts deep to the truth of human nature. It is the dogma of the antithesis and struggle of the flesh and the spirit, of the World and the Word . . . but of this dogma have come the sharp-limned dualisms of Christian conceptions, . . . salvation and damnation," and many others. In short, as seems to the present reviewer, on the whole even the medieval dualism still clings to Alexander's broken vase. He gives up the institution, but will not give up the name and its tradition (p. 500). He is orthodox, almost "fundamentalist," in spirit, although not in letter. Read his "Beauty and Pain," with its concluding homage for the Man of Sorrows, "great symbol of a Love that can Sacrifice for a Beauty that can Redeem" (p. 216). Read also this (p. 523): "To religion and philosophy, conjoined in their mutual quest of the highest truth, is appointed the natural guidance. In

the period just past they have moved in separation, not wholly, but essentially; and neither has thereby gained in its hold upon men's minds and hearts. In the future they must recover their community, if not of form, at least of understanding, until once more in portraying the transfigured Man they shall have searched out the Logos of the World."

A reviewer, in feeling and intent very sympathetic, hesitates at criticism. He would not qualify his sympathy to the point of being misunderstood. He may not, after all, have caught the author's real intent. In any case a work of art must not be judged as a rationalistic or scientific treatise. But the following may be suggested. In the light of earlier paragraphs of the Apologia as well as under the impression from the earlier essays there does appear to be a virtual return to the old tradition, even to the substance of it, and this seems unfortunate. The author himself speaks (p. 523) of his "reversion to Christian imagery" for "the vehicle of [his] thought" and after so much else in kind such an admission seems to mean that the old flat and rigid dualism, I mean the effect of it, has been retained at a time when not merely a conjoining of philosophy and religion is important, but also, if I too may revert to Christian imagery, some really sacrificial, even crucificial, changes in religion are demanded. Instead of that flat and rigid dualism and all attaching to it, however it may be modified and refined, is not our present need of something that will, I do not say abandon or betray, but still treat quite differently the Christian antithesis of the physical and the spiritual? May not the traditional dualism be so changed as really to become functional instead of rigid, mobile even to the point of constant interchange or of "mutual realization" between its ever equal terms instead of flat and set? May not that central dogmatism be crucified and give place to, or itself live again as, Christianity become experimentalism, productive and progressive circulation of the physical and the spiritual?

Let me explain. While in his "Religion and Race Progress" we are told (p. 45) by Dr. Alexander that we must have faith in nature as evidence of God and in human immortality, we are also warned (p. 96 and often) against materialism, mechanicalism, and physical or natural science generally. We are urged to look askance at physics, which is "no science of causes," and at its laws, which are "no narrative of creation." Science in general is but "a powerful instrument of knowledge" and is "in no sense a photographic reproduction of reality." In passing a comment and a query: Quite true; but is the moral and religious consciousness not also at least equally only a powerful instrument and in no sense a photograph of reality? Through whatever truths or half-truths nature is too much spurned

by Dr. Alexander and with the spurning we find the familiar Hereafterism or a too traditionally Christian evolutionism which, unless I have misunderstood, would still think of nature and man as sometime, perhaps "emergently," quite escaping from their natural selves. Yet this is just where I can not follow. The facts of the antithesis of physical and spiritual are quite too real for any one-sided emergence. Neither of the two by itself can ever be more than an instrument, however powerful. Must we not think to-day, not of the spiritual as exclusively or at least primarily evolution's goal and ultimate outcome, involving that futuristic escape, but of spirit and matter, "inner" man and "external" nature, as each a function of the other; the two equally real, yet neither ever real alone or exhaustively real; each, thanks to their interchange or mutual realization, evolving emergently out of the other?

Too much influenced perhaps by a hobby of my reasoning, finding Dr. Alexander, in spite of much that he says and in spite of his complete aloofness from the Church, still on the whole a noble medievalist, I am wondering if he has not been made a victim of his own defiant, quietly defiant, aloofness. So often opposition only makes ghosts walk, tending to induce imitation, however attenuated, as well as aloofness, whereas a less formal alienation may be more effective for real progress.

But, while I would myself substitute a functional or experimental dualism of the physical and the spiritual, a Christian experimentalism, for Dr. Alexander's deep cutting dogma, that sharp antithesis of flesh and spirit with its strong leaning towards asceticism and a spiritualistic Hereafterism, my personal conceits—have I even made them understood?—can not detract from the interest and positive value of his essays, which for their literary form as well as for their timely purpose should have a wide reading. A. H. Lloyd.

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Behaviorism. John B. Watson. New York: The People's Institute Publishing Co., Inc. 1924, 1925. Pp. 248.

The twelve lectures brought together in this volume are "intended for the use of undergraduates, and in general follow the plan of *Psychology from the Standpoint of a Behaviorist* (1919, 1924)." The first two lectures deal with the purpose and method of the behaviorist. He "wants to control man's reactions as physical scientists want to control and manipulate other natural phenomena" (p. 11). He therefore limits himself to "things that can be observed," that is, to the behavior of the organism; and "thinking is just as objective a type of behavior as baseball" (p. 6). This I believe is the starting point of behaviorists in general.

But Watson proceeds to *identify* behavior with responses to stimuli, which are conceived as reflexes; so that the problem of control is soon identified with the "*conditioning*" of responses. Further he dismisses self-observation from the possible ways of studying psychology (pp. 6–10). By these restrictions he would limit behaviorism to a doctrine held by only two or three psychologists of note, I believe.

Lectures III and IV describe with admirable brevity and clearness the physiological mechanism through which this control is to be exercised; and lectures V to IX develop the proof that this control is essentially a matter of *conditioning* responses. This proof seems to involve three general propositions: first, that man inherits only the most rudimentary patterns of response to environment; so that control is not restricted by such *internal* factors as instincts (Lect. V and VI). Second, that the emotions of man, *viz.*, fear, rage, and "love" have so few original stimuli that they may be conditioned to respond to almost any stimulus we select (Lect. VII and VIII). And third (Lect. IX), that learning, or habit formation, does not depend upon any *internal* factor of order and arrangement; for a habit is but a series of conditioned reflexes, of which the order or arrangement is wholly determined by *external,* and therefore controllable, factors in the environment (p. 167).

Lectures X and XI present the now familiar thesis that "thinking" is for the most part to be identified with verbal organization, but sometimes also with manual and visceral organization: hence the formula of the conditioned reflex can be applied to thinking habits, also; and there is again no need to deal with some *internal* factor that arranges and orders (p. 213). Lecture XII, the last, presents "man as an assembled organic machine, ready to run" (p. 216), and defines personality as the "end result of our habit systems" (p. 220).

This series of lectures probably presents the mechanistic conception of human life as forcibly as it has been done; and on the whole the treatment seems well suited to the undergraduates addressed. The thesis is one with which every educated man must deal; and the controversial and even polemic tone that pervades the book may interest the novice rather than distract his attention.

As the book lays great emphasis upon scientific procedure it seems worth while to note its departure from much that has often been held essential thereto. *The reader is not given perspective.* The author rests his case almost wholly upon experiments conducted under his own supervision; and the references to other psychologists of distinction with one exception express disagreement, and commonly express something like contempt. Watson's attempt to reduce "instincts," habit formation, and "intelligence" to the general

formula of reflex action (unconditioned or conditioned) is presented without any reference, I believe, to the fact that others, on the basis of a much wider and quite as rigorous an experimentation, are inclined in exactly the opposite direction.

Moreover, the book exhibits sweeping conclusions drawn from insufficient data. On the basis of observing some 20 children, between the ages of 150 days and one year, Watson concludes that all "handedness" is due to social usage, and that therefore right-handedness may be taught any child without danger, provided that the training is begun before many language habits have been formed (p. 102). Thus, he believes, "the main problem is settled." The results of error, however, would be very serious to a large number of children; and it hardly seems necessary to point out the possibility of error, or the availability of other methods of attacking the problem before publishing a conclusion.

Other illustrations, even more striking, of this tendency to generalize upon an altogether insufficient basis of observation are the following statements that appear without any accompanying qualification:

"Our conclusion is that we have no real evidence of the inheritance of traits. I would feel perfectly confident of the ultimately favorable outcome of careful upbringing of a healthy well-formed baby born of a long line of crooks, murderers and thieves, and prostitutes" (p. 82).

"Whence come these differences in the machine? In the case of man, all healthy individuals, as we saw in our lecture on Instincts, start out *equal*. . . . It is what happens to individuals after birth that makes one a hewer of wood and a drawer of water, another a diplomat, a thief, a successful business man or a far-famed scientist" (p. 217).

The statement (p. 110) that William James applied the epithets "tedious," "fictitious," "unimportant," and "inaccurate" to certain excerpts from Lange, Darwin, and Mantegazza is an error due to careless reading of page 448 of the *Principles*, Vol. II. When James uses these adjectives he is speaking of descriptions of "*internal* shading of feelings" (italics mine); as is quite clear from the context. In *A Briefer Course*, he names Descartes and his successors in this connection (p. 374). It is unfortunate that this error is given currency.

On the other hand, the philosopher as well as the psychologist may well be grateful to Dr. Watson for the skill with which he demolishes those traditional concepts of mind which make of it a forceful entity, or a place of storage, or some kind of stuff. The undergraduate may not come across Spinoza's execution of the same task.

In this connection I did have to hunt for some time before I could find how Watson distinguishes between the verbal, manual, and visceral organizations *of which we are aware,* and those of which we are not. Quite suddenly, on page 212, he says that "being conscious" means "the act of *naming our universe of objects.*" But then, page 214, he says, "*we could still think even if we had no words*" (italics his).

To object that one can not name objects without words, or think without being conscious, would prove one a mere "self-observationist," or introspectionist. However, in this original sin we have excellent company. "Every man can watch his own way of acting, and he will often be surprised when he comes to face the real stimuli that touch off his actions. . . . The individual, when he really faces himself, is often almost, if not quite, overcome by what is revealed—infantile behavior, unethical standards, smothered over by the thinnest veneer of rationalization. Nakedness of 'soul' can be faced only by the truly brave," says Watson, in his *Behaviorism,* page 238.

In closing I raise with some trepidation a question concerning Watson's well-known experiments in the conditioning of infants' emotions. His conclusions have done much to arouse interest in preschool training and have, I believe, profoundly affected psychiatric theory. These applications are not, I think, concerned in the following issue. Watson's summary, page 124, gives loud sounds and withdrawal of support as the sole original stimuli to the fear response. But the detail of his experiments shows that in each case suddenness may be the factor that is essential, and that the sounds need not be loud. This *relational* element of suddenness again appears in what Watson finds to be a potent stimulus to fear in infants of three years, *viz.,* the sudden jumping of a frog. At least many fear responses seem at present easier to explain upon the basis of an original stimulus consisting of some sort of inadequacy to the situation which is *suddenly* present, than by trying to trace them back through a process of conditioning to one of the two original stimuli named by Watson. It will be seen that this interpretation fits in with the "*gestalt*" hypothesis better than with Watson's analysis of native responses into reflexes.

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NOTES AND NEWS

In honor of Alfred Loisy, who has reached the age of seventy years, there will be held in Paris at the Collège de France, April 19–22, 1927, a Congress for the History of Christianity. The general themes to be discussed are (1) The Beginnings of Christianity and its Progress in the First Centuries; (2) Medieval Christianity. The Political Power of the Papacy. The Formation and Decline of Scholasticism; (3) The Protestant Reformation. The Catholic Reaction. The Origin of Modern States. The Separation of Church and State.

The committee in charge includes Benj. W. Bacon, G. A. Van den Bergh van Eysinga, Ernesto Buonaiuti, Maurice Croiset, Frantz Cumont, Eugène de Faye, Sir James G. Frazer, Charles Guignebert, Adolf von Harnack, L. P. Jacks, Richard Kreglinger, Raffaele Pettazoni, Salomon Reinach, Nathan Sœderblom.

The fee for participation in the Congress is $1.00 and communications should be addressed to Mlle. M. Brunot, 41 Rue Gay-Lussac Paris, V°, France.